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P&PD Explorer

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Summary

The P&PD Explorer is an interactive, spreadsheet-based tool for examining the data tables in the Planning and Production Directive (P&PD).

Background

The P&PD is produced by the NNSA and may be revised multiple times in a year as needed. It provides the top-level planning information for the nuclear weapons program, documented in many tables of inventory and production planning data that span 45 years. The volume of tabular data makes it challenging to efficiently grasp the information in the document. The P&PD Explorer enables quick, graphical investigation of the many tables in the P&PD. The P&PD Explorer is designed to operate on the P&PD tables with minimal additional information.

P&PD Tables

The P&PD provides planning data in the form of many tables. Several tables contain data on the size of the stockpile, decomposed by weapon system and readiness state, as well as different ways of combining and summarizing these data. Additional tables give workload planning levels for weapon assembly and disassembly, pit production, and CSA production. Additional tables give data on managing inventories of weapon systems, pits, and CSAs.

The P&PD Explorer

The P&PD Explorer reads key information from the P&PD tables and generates graphs of the data tables. The tool output is organized into topics, including stockpile information, modernization programs, warhead and component production, and disposition.

The tool reads statistics on the stockpile plan, including maximum and minimum stockpile numbers by weapon system and when those occur. It also reads the start and completion of warhead modernization programs, weapon draw-down and weapon retirement.

The tool provides graphical output for stockpile quantities, which can be sorted and grouped by weapon system, stockpile leg, or weapon features. Additional groupings can be easily added through modification of an association table in the tool.

Plans for modernization programs are presented as timelines and tables of dates. These plans are expressed for system assembly, pit production, and CSA production. Additional graphics show data from tables for workload levels.

Finally, the tool displays graphical representation for management of inventories. These include the backlog of weapons awaiting dismantlement, management of the pit inventory, and management of the CSA inventory.

Tool Maintenance

The P&PD Explorer is designed to be easily updated when a new P&PD is produced. The tool reads data directly from P&PD tables, which are provided in Excel format by NNSA and can be copied into the tool. As currently configured, a few indexes must be generated to ensure correct reading of the tables. For generating graphs, there are three association tables that can be modified to provide additional groupings.